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DECUS NO.	8-651
TITLE	SOLMT (SORT OVERLAY LISTINGS USING MAGNETIC TAPE)
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SOURCE LANGUAGE	PAL-8

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(4) Are the operating instructions:

(a) Clear Yes ☐ No ☐ (b) Understandable Yes ☐ No ☐ (c) Complete Yes ☐ No ☐

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Please check any section which caused trouble and specify below.

Paper Tape Compile ☐ Load ☐ Start-up ☐

DECtape/LINCtape/Magtape Monitor or system file retrieval ☐ Compile ☐ Load ☐ Start-up ☐

Program Operation Running ☐ Peripheral handling ☐ Input/output ☐

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September 1972

SOLMT (SORT OVERLAY LISTINGS WITH MAG TAPE)

General

If a PAL-8 program has been built from a number of programs which overlay each other, SOLMT may be used to build a composite listing of the whole program, from the listings of the overlays. Input and output is on Dectape.

An example of the use of SOLMT is given in Appendix 1.

Description

The program is divided into 5 parts.

a) Initialization

The operator specifies the input and output files: the input tape directory is examined, and the output file is opened.

All file names have the subscript .LS

b) Pass 1

This is to check that the listings files specified

actually do correspond with the composite program. The listings are read, and then a binary paper tape of the program is checked against them, with differences reported.

c) Pass 2

The listings are read, and for each address in the composite program, it is noted from which file the data is obtained. (This is done by putting a reference to the file into the corresponding address of field 1.)

d) Pass 3

The listings are read, and any line containing "=" followed immediately by a "6" is output. (This is to give easy reference to special I/O instructions).

e) Pass 4

This is where most of the output occurs. Field 1 is read through, to find the appropriate file for each program address. The file is searched, and the appropriate line, together with preceeding lines of comment, are printed. Lines containing "=", and those starting with "*" are ignored. Lines containing form feed are ignored, and a form feed is inserted after every 55 lines. When field 1 has been read through the output file is closed, and the program halts.

Operating Instructions

All operator input messages are effective when CR is pressed. Before this, lines in error may be deleted by CTRL/U.

1. Load SOLMT using PS8, Program halts at Ø2ØØ. Load DECTAPES. Press continue.

2. Message DTA? is output. Enter number of DTA containing input files.

3. Message DTA OUT? is output. Enter number of DTA to contain output file.

4. Message O/P FILE? is output. Enter name of output file. Do not include subscript. .LS will be added automatically.

5. Message HOW MANY? is output. Enter number of input files.

6. Message 1 FILE/LINE LEAST SIG FIRST is output. Enter the names of the input files, oldest first. Do not include subscript, .LS will be added automatically.

7. Message PAPER TAPE is output. Load program binary tape on high speed reader. Press any teletype key. A list of differences will be output on the teletype. (There will always be one listed for the track sum). The program will halt. If satisfactory, press continue.

8. Program will run to end.

Special Features

Some rather artificial features in the program are included for special local needs, and may easily be changed. Eg:-

1. During pass 2, address lines are only output if "=" is followed by "6".

2. During pass 2, "*" lines are ignored.

If it is not required to check the listings against paper tape, or if the tape is to be read on a teletype, this can be changed. As the program stands, to ignore reading paper tape wait for the message PAPER TAPE, then halt, load address Ø634 and continue. (Do not skip pass 1, as this also finds the ends of the listings files).

It would probably be easy to modify SOLMT to sort programs contained in more than 1 field, providing SOLMT has one more field available than the length of the program it is sorting.

Limitations

SOLMT will not deal with the following conditions.

1. If one of the source programs has any address used more than once.

e.g.

```
*2ØØ
 TAD A
  ⋮
*2ØØ
 TAD B
```

Depending on various circumstances, either line may be output for address Ø2ØØ, rather than the second line.

Run Time

As a rough guide, a program made up of a main program occupying a complete field, with 14 overlays averaging about 6 pages each, all with the normal amount of comment, takes about 3 or 4 hours.

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KGJ/MC

Example of Use of SOLMT

Three programs are shown: MAIN is overlaid first by CORRECTION 1, then by CORRECTION 2.

```
*200                                        PAL8  5/23/73   PAGE 1

                *200
                /MAIN
0200  1000              TAD             /A
                /BB
0201  7040              CMA             /B
                /CC
0202  7001              IAC             /C
                /DD
0203  7040              CMA             /D
                $
```

```
*202                                        PAL8  5/23/73   PAGE 1

                *202
                /CORRECTION 1
0202  7440              SZA             /E
                /FF
0203  7200              CLA             /F
                $
```

```
*203                                        PAL8  5/23/73   PAGE 1

                *203
                /CORRECTION 2
0203  7041              CIA             /G
                $
```

This is the result of running SOLMT with those three programs as input.

It is seen that for each program address, the line from the appropriate listing has been output, together with any preceeding comments from the same listing.

Note that the "*" lines have been deleted.

```
                /MAIN
0200  1000              TAD             /A
                /BB
0201  7040              CMA             /B

                /CORRECTION 1
0202  7440              SZA             /E

                /CORRECTION 2
0203  7041              CIA             /G
```